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Using smartphone data for studying natural hazards

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In the last decade we have been witness once again to the destructive power of Mother Nature, and the loss of life due to natural disasters. One of the key problems of studying and monitoring natural hazards is the availability of high resolution (temporal and spatial) data in the region of the natural hazards. These data are also needed for early warning systems to inform the public of upcoming events. The recent advances in smartphone developments allow us to use the suite of micro-sensors available today in most smartphones (GPS, magnetic field, gravity, accelerometer, temperature, pressure, humidity, etc....) that provide continuous streams of High Dimensional Big Data (HDBD) from all over the globe, to study natural hazards anywhere in the world. In particular, urban environments have the densest coverage of smartphone useres, and these are where natural hazards are so deadly. By 2020 there will be more than 6 billion smartphones spread around the globe. In this presentation we will present some initial analysis of smartphone data related to a few case studies from natural disasters in 2016. The data are from the global WeatherSignal App that collects data from tens of thousands of smartphone users around the globe every day.